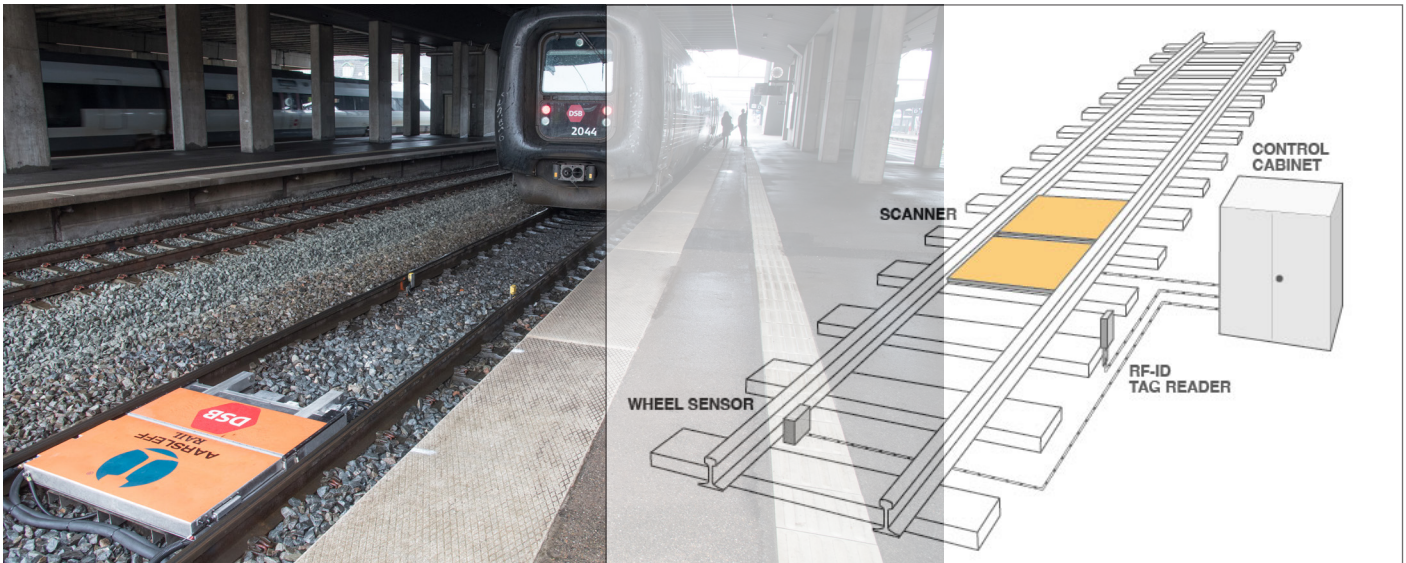




**AARSLEFF  
RAIL**

## **AUTOMATIC BRAKE INSPECTION (ABI)**

proven high performance vision technology



Demands to infrastructure operators are increasing and it is becoming increasingly important to have a smooth and failure free train operation. Down time should be minimized for optimal fleet management. The Automatic Brake Inspection (ABI) will provide constant digital monitoring and save money.

### **Why ABI?**

Frequent digital documentation is an important part of next generation fleet management. Digital imaging and documentation will enable machine learning for predicting failure and need for repair.

Optimal use of resources requires a constant control of equipment. Having a high level of digital documentation can provide reduced cost and a more sustainable operation. With a short time from detection to maintenance and repair, the flexibility of the fleet can be maximized.

### **About the Automatic Brake Inspection System**

The unique Automatic Brake Inspection system combines advanced sensors with modern digital technology and automatically collects images of the brake pads and information on the wear of brake pads of passing trains.

The ABI system can replace manual control and more time-consuming inspection. It provides the train operator with very accurate and reliable monitoring of the brake pads on passing trains. This saves time and money, while increasing quality and operation time

With decades of experience in building railways, Aarsleff Rail has developed the ABS system to match the real-life conditions in the rail.

### **ABI FEATURES**

- › Vision system operates at train speed up to 60 km/h
- › Brake pad thickness measured with 1/10 mm accuracy
- › Dedicated combination of high-performance cameras and illumination.
- › Optional user front ends for operating system and images
- › Linux Enterprise based operating system
- › TCP/IP based components.

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## THE UNIQUE FEATURES OF THE ABI SYSTEM

### Robust and durable

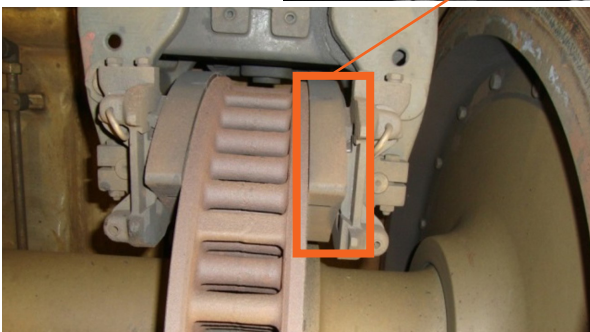
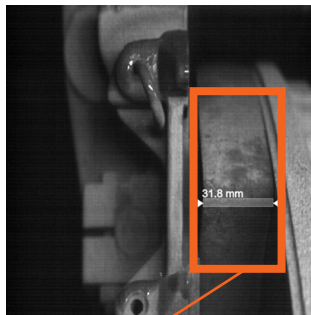
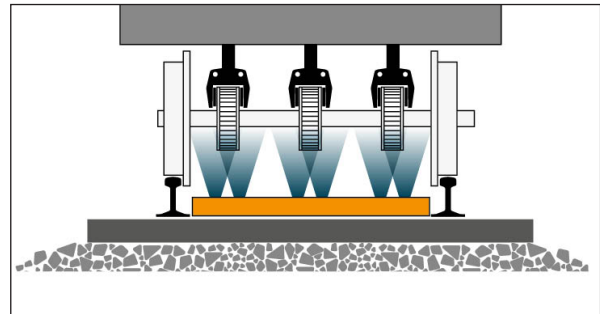
The system components are protected in a robust aluminum casing, designed for easy transport and installation. High uptime is ensured by the climate conditioned scanner system ensuring a stable operating temperature during winter as well as summer.

### Environment protected

The automatic open/close function protects the scanner when not active. The integrated sprinkler system keeps the scanner glass clean, enabling high quality images.

### Reliable software

The reliable backbone system operates in a very stable manner with other system components. The software supports exchange of any data needed for inspection and control. Data can be stored in a database for internal processing or exported if needed.



### How it works

A train passing is registered by a sensor near the scanner. The scanner box opens automatically, and images are captured from the underside of the train vehicle passing. The scanning unit is managed from a cabinet located nearby the scanner.

Using a specially developed algorithm, the system calculates the wear on the brake pads with 1/10 mm accuracy. The system allows each brake pad to be continuously monitored and will reveal unexpected wear that can be an early sign of faults in the brake system.

When brake pads have reached a specified minimum thickness, the ABI system sends a message to the maintenance system, and a work order for replacement of the bogie's brake pads is generated. When the train passes a scanner after the workshop visit, the ABI system registers that replacement has taken place and the work order is acknowledged in the maintenance system.

### ABOUT AARSLEFF RAIL

Aarsleff Rail is a leading Scandinavian supplier of railway and tramway works and carries out new construction, renewal as well as maintenance in Denmark, Sweden, Norway and Germany. We focus on effective solutions and strive for good cooperation with our customers before, during and after the projects. Aarsleff Rail was established in 2009 and is part of the Aarsleff Group established in 1947. The Norwegian contractor Trym Anlegg AS is also part of Aarsleff Rail. Key figures 2021: Annual turnover 1,9 bDKK; approx. 850 employees; business offices in Denmark, Sweden and Norway.

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